

Proposed Amendment: Tables of Maximum Incremental Reactivity (MIR) Values

Reactivity Research Advisory Committee

March 25, 2009

www.arb.ca.gov/research/reactivity/reactivity.htm

Ralph Propper: rpropper@arb.ca.gov, (916) 323-1535

California Environmental Protection Agency



Air Resources Board

Regulatory Status, 2000

- Amended Aerosol Coating Products Regulation
 - includes Reactivity
- New subchapter with MIR values
- Reactivity limits for 36 coating categories based on MIR scale
- Board Directive to Executive Officer:
 - Review MIR values every 18 months (Revise if necessary)
 - Amendments to update MIR values, conducted thru Executive Officer public hearing

2000 vs 2003: Tables of MIR Values

2000:

- Section 94700: MIR values for ~ 700 individual VOCs or mixtures
- Section 94701: MIR values for 24 classes of hydrocarbon solvents

2003:

- Section 94700: MIR values for ~ 800 individual VOCs or mixtures
- Section 94701: no change to MIRs for 24 bins of HC solvents
- 102 new compounds with MIR values added to Section 94700
- For 14 existing VOCs, MIR values changed by > 5%

Why Amend MIR Values?

- Board resolution: review tables every 18 months
- Last amended in December 2003
- Regulations should be based on “best science”
- Dr. Carter’s research: significant change for many MIR values due to new SAPRC-07 mechanism
- Hundreds of VOCs added to SAPRC mechanism, and also MIR tabulation

Section 94700 & 94701 Changes

- Add hundreds of new VOCs or mixtures
- Revised column for MIR value
- Review of bin values for hydrocarbon solvents
 - New solvents
 - Impacts of new MIR values on bin system

Dr. Carter's review of MIR values

SAPRC-99 to SAPRC-07: major revision

1500 experiments, ~350 VOCs/mixtures added

Corrections/modifications to mechanisms

Additions/changes: chlorine chemistry, aromatic mechanisms, PM prediction

- Overall, MIR values lowered by ~7%
- 94% of VOCs: MIR values changed <30%
- But, 8 VOCs changed >60%

Scientific Reviews

- Research Screening Committee approved Dr. Carter's draft final report for SAPRC-07
- SAPRC-07 Peer Review: Evaluation by independent distinguished scientists
- Reactivity Scientific Advisory Committee reviewed the scientific basis for SAPRC-07, and resulting MIRs

Environmental Impacts

- California Environmental Quality Act (CEQA) requires evaluation of impacts
 - Particulate Matter (PM)
 - Global Warming
 - Stratospheric Ozone Depletion
 - Water Quality & Landfill Loading
 - Increased Use of Toxics
 - Tropospheric Ozone Concentrations

Economic and Other Impacts

- Evaluate economic impacts on existing products
- Other reactivity-based regulations
 - Low-Emission Vehicle/Clean Fuel regulation
 - Future reactivity-based regulations for other source categories
- Environmental Justice

Timeline

- Peer Review of SAPRC-07 Mechanism, Reactivity Scientific Advisory Committee review, and Final MIR Values – today
- Proposed amendments to tables of MIR values, including hydrocarbon solvent bins
 - ARB Staff Report – summer 2009
 - ARB Exec. Officer hearing – fall 2009